

**SCRAPER BLADE**

The invention concerns a scraper blade.

5 When heavy materials are conveyed on endless conveyor belts, the heavy material sometimes has a tendency to stick to the conveyor belt.

To eliminate such deposits of material, a scraper is used which, bearing on the face of the face of the conveyor belt, detaches the material.

10 These scrapers are mounted in particular at the conveyor belt return device just downstream of the area where the material leaves the conveyor belt.

These scrapers are then referred to as frontal scrapers.

Conventionally, a scraper comprises one or more scraper blades mounted on a common support, this common support comprising a tensioning means with a view to forcing the scraper blade in the direction of the conveyor belt.

15 This tensioning means makes it possible in particular to keep the blade in contact with the belt as the said blade wears.

These blades, in order to be exchangeable, have a fixing means on the support, this fixing means being more or less elaborate.

20 More and more often, blades are produced from synthetic material and in order to fix them to the support these blades are moulded onto a metal insert.

The insert is usually a straight metallic plate (EP 893 376) or a sort of profiled section in an inverted U (US 5 979 638).

25 Unfortunately problems of longevity are found, in particular relating to the forces which are transmitted in the blade, these forces being mainly directed in the direction of the height of the said blade.

The blade then has to dissipate all the forces and often connection faults occur between the insert and the part moulded on top.

The invention sets out to afford a solution to the problems mentioned above.

30 To this end, the object of the invention is a scraper blade made from synthetic material moulded on an insert used for fixing it to a support, this scraper blade being characterised in that the insert is in the form of a metal plate comprising a first external part that extends the base of the scraper blade downwards and a second

internal part inclined with respect to the aforementioned first part and this inclination being such that the forces exerted on the blade when the latter is applied to the conveyor are substantially perpendicular to this second part.

5 The invention will be clearly understood by means of the description given below by way of non-limiting example with regard to the drawing which depicts schematically:

FIG 1: a scraper in perspective

FIG 2: a profile view

10 Referring to the drawing, a scraper blade 1 can be seen made from synthetic material moulded on an insert 2.

This insert 2 is in particular used for fixing the blade to a support 3 acted on by a tension means with a view to applying the free end 1A of the blade 1 against the carrying face 4 of a conveyor belt.

This blade 1 is of the type used for a so-called frontal mounting.

15 This blade 1 has its free end 1A presenting a leading edge and possibly a substantially planar face 5 that is mounted so as to be substantially tangent to the point of application of the edge of the blade in contact with the conveyor belt.

This blade 1 thickens from its top part towards the bottom.

20 It is slightly curved, the concavity being turned towards the conveyor when the blade is mounted on its support.

The profiles of the frontal and dorsal face are determined in particular so that the blade resists flexion.

25 The insert 2 makes it possible to fix the blade to a support 3 which, by an elastic or other means, tends to apply the blade against the surface of the conveyor to be cleaned.

The scraper can consist of a single blade or several blades mounted alongside each other.

30 According to the invention, the insert 2 is in the form of a metal plate 2 comprising a first external part 2A that extends downwards to the base of the scraper blade 1 and a second internal part 2B inclined with respect to the aforementioned first part and this inclination being such that the forces F that are

exerted on the blade when the latter is applied against the conveyor are substantially perpendicular to this second part.

When talking of substantially perpendicular, a variation of plus or minus  $45^{\circ}$  with respect to a strictly perpendicular position will be accepted.

5 In this way, the forces that are exerted on the blade do not make the junction area of the blade with the plate work in shearing but quite the contrary act on this plate under compression and thus make the connecting area 2C between the two parts 2A, 2B of this plate work under flexion.

10 The part 2B is housed in the blade at a distance from the base of the synthetic blade and a small proportion of this part 2B is situated outside the synthetic material.

As can be seen, the plate 2 is folded towards the rear of the scraper blade so that, if by mischance the synthetic material came to be detached from the insert or the blade were used beyond what is recommended, there would be no risk of tearing away of the belt since the contact between the insert and the blade would be  
15 effected by a rounded part.

As is clear in the drawing, the inclination of the second part 2B of the plate with respect to the first 2A is, in the case depicted,  $115^{\circ}$ , this angle is defined according to the position of the support and of the return device of the conveyor.

20 This first part 2A of the plate is situated in front of the base of the blade 1. It is situated, in the example depicted, recessed from the flat face 5 of the free end of the scraper.

The second part 2B of the plate passes to almost the whole of the thickness of the blade.

This plate will preferably be made from stainless steel.

25 Cut-outs in the external part allow the passage of screws.

For better overmoulding, cut-outs in the internal part of the plate can be provided.

The width of the plate 2 is less than the width of the blade.